DUMPIT: Fri Dec 2 15:26:42 EST 1983
From: mel
Date: 21 Nov 1983 at 1403-EST
To: jsl
Subject: Letter to NSF

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>From: cunyvm%mailer
Date: 20 Nov 1983 at 1623-EST
Date: 20 November 83 16:20 EST
>From: IHFCU @ CUNYVM
To: MEL@ROCKVAX
Subject: Science network letter

Dr. Edward Knapp
Director
National Science Foundation
Washington, DC

Dear Dr. Knapp:

The past fifteen years have seen the rapid development of computer network technology. Today, networks provide a high level of communications services to many university, government, and industrial computer scientists as well as to numbers of scientists and engineers in other fields. Arpanet (DCA and DARPA sponsored), CSNET (NSF sponsored), BITNET (university computer center sponsored), and Mailnet (Educom sponsored) are examples of communications networks which currently serve the university community. The very significant benefits of these networks have been well demonstrated to their users and sponsors.

We understand that NSF is now considering establishment of a 'Science Net' to provide communications services, including supercomputer access, to scientists and engineers throughout the U.S. university community. We are writing for two reasons:

(1) First, we strongly encourage the NSF to proceed as quickly as possible to establish a national Science Net. We believe that the success of the supercomputer initiative will, to a great extent, depend on the quality of access provided and the availability of enhanced communications throughout the research community.

(2) Second, we encourage use of existing technologies which we believe are adequate to deliver required services. Computer communication networks such as Arpanet, CSNET, and BITNET have established extraordinary levels of intra and interdisciplinary communication, as well as increased productivity through remote computer access, software exchange, etc., all to the great benefit of existing users of these networks.

An example of an important service currently available via Arpanet/CSNET is the MOSIS fabrication facility sponsored jointly by DARPA and NSF. Besides representing an important precedent with respect to cooperation between the two agencies, MOSIS has demonstrated the utility of the type of network recommended for providing services to a widely dispersed heterogeneous user community.

A possible scenario would be to utilize DARPA Internet technology where the cost of such network connections can be justified by the local

level of research activity. DARPA Internet technology provides the highest level of service amongst the currently available connection alternatives. It is likely that fewer than fifty such nodes would be required. Universities with a lower level of research activity could access Science Net via use of lower cost remote access to one of these nodes or by use of one of the CSNET/BITNET technology alternatives (telephone based relaying, X.25 net connection, leased line). Interoperability between the Arpanet, CSNET, and BITNET technology components would allow all these approaches to operate as one consistent network.

Very high bandwidth requirements (greater that 56 kbps) could be satisfied by adoption of wideband technology under development within the DARPA research community. We recommend that the NSF cooperate with DARPA to continue development of this technology and to provide for establishment of a prototype network for use by the science community.

Given the above approach, the total annual cost of including relevant U.S. university science and engineering groups would be insignificant in comparison to the potential benefits. For example, the cost of an Arpanet connection for the entire scientific and engineering community of a major research university is a small percentage of the yearly costs of internal computing services within that university. Most of the annual cost of such a network would be for the leasing of communications lines and payment of any associated traffic charges. Since there would be minimal investment in equipment, such a network would not be bound to a specific generation of technology and could be upgraded and/or supplemented by commercial networks when and if they become widely available at an acceptable cost and level of service.

The individuals signing below recommend that you, as Director of the National Science Foundation, undertake to supply network services to the university science and engineering community as soon as possible.

Signed by Identification:

(Those marked with an asterisk (*) are either computer scientists active in the networking field or scientists with first-hand experience in the use of one or more of the existing networks.)

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This letter is being circulated for signatures. I will be signing. If you haven't already been solicited, we would welcome the contribution of your name.